Allen (J.)

A NEW METHOD

OF

CONSTRUCTING

ARTIFICIAL DENTURES,*

COMBINING

Cleanliness, Strength, Natural Expression,

AND

RESTORATION OF THE FORM OF THE FACE.

BY DOCT. J. ALLEN,

Late Professor in the Ohio College of Dental Surgery,

OFFICE, 30 BOND STREET, NEW YORK.

NEW YORK:
HOLMAN, GRAY & CO., PRINTERS, COR. CENTRE & WHITE STREETS.
1854.

* Artificial Teeth, Gums and Plates.

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* Artificial Teeth, Gums and Plates.

A NEW METHOD

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CONSTRUCTING ARTIFICIAL DENTURES.

The Subscriber has the pleasure of announcing to the Public, that he has located in the City of New-York for the purpose of introducing his improved method of constructing Artificial Dentures.* This method combines the following advantages:—

An artificial gum, which exhibits a perfectly natural and life-like appearance, and imparts to the teeth that peculiar expression which characterizes the natural organs.

This gum, consists of a silicious compound, which is applied and fused upon the teeth and plate in such a manner as to fill up all the interstices around the base of the teeth, and also unites them firmly to each other and to the plate upon which they are set. This secures perfect

CLEANLINESS OF THE TEETH.

The crevices under and around the base of the teeth being all filled up solid, there can be no lodgement of food to vitiate the saliva, or infect the breath; for not even the slightest moisture can get between the teeth and plates when thus united.

The importance of a sweet and healthy mouth, will be readily perceived in view of the fact, that the food which is taken into the system is moistened with the saliva; and if this be vitiated, either from an unhealthy condition of the salivary glands, or by contact with filthy

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* For the benefit of the common reader it will be well to state, that by the expression "*Artificial Dentures*," we mean, the combination of teeth, gum and plate.

dentures, it exerts a baneful influence upon the stomach and alimentary canal, and impairs the general health in a greater or less degree. A pernicious effect is also produced upon the system by inhalation. A person inhales atmosphere 20,000 times every twenty-four hours. If this becomes polluted by the fœtor, which is constantly being emitted from impure dental organs, (either natural or artificial,) it does not impart to the system that invigorating principle which promotes health.

The object of respiration is to convey fresh atmosphere to the lungs for the purpose of arterializing the blood. If the atmosphere be impure, the blood will not be purified; in consequence of which, the blush of the rose, leaves the cheek, and the hue of the sear and yellow leaf takes its place.

Again, the exhalations, from persons whose mouths are not in a sweet and healthy condition, often renders them offensive to others.

Reader, think for a moment, how repulsive the idea to spend a life with one whose breath is but the issue of constant noxious vapors!

GREAT STRENGTH:

The teeth, being united to each other at their base, and to the plate upon which they are set, acquire a greater degree of solidity and firmness, than when disconnected; and no ordinary force, in masticating, can break the teeth from the plate.

A CLEAR AND DISTINCT ARTICULATION OF SPEECH,

is another consideration of great importance, especially to a public speaker.

If an artificial denture be so constructed as to be unnatural in form, the tongue will not play upon it so as to produce distinct enunciation. Hence the MUFFLED or hissing sounds which are often observed in speaking, singing and conversation.

In the construction of a musical instrument (with reeds or tongues) the most perfect adaptation of the surrounding parts is necessary in order that each note should have a round, full, and clear tone; the slightest defect, in this respect, throws the instrument out of tune, and discordant notes fall harshly upon the ear. So with the human voice. In order that the notes and words be clear, full, and melodious, a perfectly natural form should be given to artificial teeth and gums, in order that they may be properly adapted to the tongue.

EXPRESSION OF THE TEETH:*

In order to produce a pleasing and natural expression of the teeth, they should be in perfect harmony with all the other features. It is not always the most beautiful and symmetrical artificial teeth which appear the most natural in the mouth. On the contrary, persons of bold and strongly marked features often require slight irregularities, with prominent eye-teeth, etc.; therefore, as great a variety of expressions should be given to the teeth as there are persons for whom they are intended. A few slight touches of the brush in the hands of a skilful artist, will change the whole expression of his picture. So with the teeth: a slight inclination outward or inward, or oblique, will change the entire expression of the mouth. Hence, many persons look worse with, than without, artificial teeth, in consequence of the unnatural expression they give to the wearer. Every tooth should have such a form, and occupy such a position, as to display an individual expression of its own, and yet be in perfect keeping with all the rest; for nature is harmonious in all her works.

THE LENGTH OF THE TEETH,

should depend upon the width of the lips, and the degree of absorption of the alveolar ridge. If the teeth are too short, the muscles which connect the jaws become con-

* To this the Author will devote the most scrupulous attention.

tracted. This brings the nose and chin into closer prox imity with each other, and when the teeth are closed, the lips are compressed or protruded, which changes, in a greater or less degree, the form and expression of the mouth and other portions of the face.

Artificial teeth should be of sufficient length to keep the jaws as far apart as they were before the natural teeth were lost. This will give to the face its due proportion in length, and cause an agreeable display of the teeth in conversation, smiling, or laughing.

THE FORM OF THE TEETH,

should correspond with the form of the face. For example: a person of a thin visage should have small convex teeth; one with a broad, full face, should have larger teeth, with less convexity. A great variety of teeth are now being made of a perfectly *natural form* and shade, expressly for this style of work.

THE SHADE OF THE TEETH,

should harmonize with the complexion and color of the lips. If the teeth are too white they will exhibit a hard, ghastly and unnatural appearance, which readily leads to detection. If too dark, they will not appear sweet and healthy. Teeth should be a little darker next the gum than at the points. In short, there should be a soft and harmonious blending of the shades of the teeth, gums, lips and complexion.

This method of constructing artificial dentures, combines, with great advantage, another important feature, which consists of additional attachments to the framework, supporting the teeth and gums, FOR RESTORING THE FORM AND NATURAL EXPRESSION OF THE FACE, in cases where the muscles have become sunken, or fallen in from the loss of the teeth and consequent absorption of the alveolar processes.

These attachments are so constructed, as to become permanent fixtures or component parts of the denture; and of such form and dimensions, as to bring out each muscle or portion of the face, which may have become sunken, to its original position; and when rightly formed, cannot be detected by the closest observer. By this means, the natural *form and expression of the mouth and face* can be preserved through life. The necessity for these attachments arises from the fact, that there are two important points to be attained; one is, PERMANENCE OF THE TEETH; the other, RESTORATION OF THE FEATURES. both of which cannot always be effected by simply inserting the teeth.

In order that artificial teeth may be useful for masticating, they should be placed upon the plate and articulated in such a manner as to have the pressure in chewing, come upon the inner rather than the outer margin of the alveolar ridges. This position of the teeth will prevent the plates from becoming dislodged from one side, while chewing upon the opposite, and secures permanence in mastication.

If the teeth are placed far enough out to restore the muscles of the face to their original fullness, they will in many cases prove useless for masticating food.

THE FACE,

Is formed of different muscles, which give it shape and expression. These muscles rest upon the teeth and alveolar processes, which sustain them in their proper position.

When the teeth are lost, and a consequent absorption of the alveolus takes place, the muscles fall in, or become sunken in a greater or less degree, according to the temperament of the person. If the lymphatic predominates, the change will be but slight. If nervous sanguine, it may be very great.

There are four points of the face which the mere inser-

DR. J. ALLEN'S
Improvement in Dental Surgery

RESTORING THE CONTOUR OF THE FACE

THE ABOVE PORTRAITS REPRESENT THE SAME FACE - ONE WITHOUT THE IMPROVEMENT, THE OTHER WITH.

By this improvement the form of the face can be restored to any degree of rotundity that may be desired. It is applicable in all cases where the cheeks have fallen in, and cannot be detected by the closest observer.

OFFICE Nº 30 BOND St

New York.

A. Dieterich Eng. 102 Broadway, N.Y.

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tion of the teeth does not always restore, viz: one upon each side, beneath the malar or cheek bone; and one upon each side of the base of the nose, in a line towards the front portion of the malar bone.

The muscles situated upon the sides of the face, and which rest upon the molar or back teeth, are the Zygomaticus Major, Masseter, and Buccinator. The loss of the above teeth cause these muscles to fall in.

The principal muscles which form the front portion of the face and lips are Zygomaticus Minor, Levator labii superioris alæque nasi and Orbicularis oris.

These rest upon the front, eye, and Bicuspid teeth; which, when lost, allow the muscles to sink in, thereby changing the form and expression of the mouth.

The insertion of the front teeth, will, in a great measure bring out the lips, but there are *two muscles* in the front portion of the face which cannot, in many cases, be thus restored to their original position; one is the Zygomaticus minor, which arises from the front part of the malar bone, and is inserted into the upper lip above the angle of the mouth. The other is the Levator labii superioris alæque nasi, which arises from the nasal process and from the edge of the orbit above the infra orbitar foramen. It is inserted into the ala nasi or wing of the nose and upper lip.

The attachments before mentioned, applied to these four points of the face, beneath the muscles just described, bring out that narrowness and sunken expression about the upper lip, and cheeks, to the same breadth and fullness, which they formerly displayed, thus restoring the original, pleasing and natural expression. These attachments for restoring the form of the face were first constructed by the subscriber, some eight years since, and they have been constantly worn by various persons with ease and comfort ever since that period. They were first formed of gold plates by being stamped to the requisite form, and attached to the main plate and teeth. The plates are

now covered with the compound, of which the artificial gum is formed, and which renders the denture, when thus constructed, far more perfect than the previous mode.

The perfection to which this style of work has been brought by the Author, has induced him to devote his exclusive attention to the construction of full and partial Sets of Teeth; in doing which, he pledges himself to carry out faithfully the principles here set forth.

The Subscriber has secured the services of C. S. PUTNAM, who is thoroughly acquainted with this style of work, and whose professional skill and gentlemanly deportment entitles him to the most entire confidence.

J. ALLEN,

No. 30 Bond-Street, New-York.

References can be given to hundreds of persons now wearing this style of work, and also to numerous Dentists in the various Cities of the Union who have adopted it in their practice.

APPENDIX.

PRINCIPLES UPON WHICH THIS SYSTEM IS BASED

With reference to recipes for enamels, I know of none that possess the requisite properties for uniting mineral teeth and metalic plates to each other, in such a manner as to form continuous gums, upon artificial dentures, without either cracking, scaling, or warping the plates, upon which they are flowed, unless both sides of the plate are covered, which is found to be inadmissible for dental purposes. There are important principles, which must be observed, in order to form a continuous gum without encountering the difficulties above named, as the various efforts which have been made to attain this end, and have always proved abortive, clearly show. In the first place, there should be a strong chemical affinity between the component parts of the compound, the teeth, and the plate upon which it is to be fused, in order that a perfect union of the whole should be formed. Among the various metals with which we are most familiar, we find that the linear dilatation of platinum by heat when

raised to 212°, according to Borda, is one part in 1167, which is the least of any of the metals. Palladium, according to Wollaston, 1 in 1000; Gold, 1 in 713; Silver, 1 in 505.

Among the minerals we find that the same degree of temperature will produce a linear expansion as follows: Stone from St. Pernon, 1 in 2304; Stone from St. Leu, 1 in 1541. The clay which is obtained in Dorsetshire and Devonshire, 1 in 2123. In Wedgewood's wares, a large proportion of this material is used. Cornish stone, 1 in 1521; Sulphate of Barytes, 1 in 1204; Sulphate of Strontites, 1 in 1128; Asbestos, 1 in 1769; pure Silex, 1 in 1662.

From the metals above named, I select platina as the most suitable for plates for my new style of work, because the linear dilatation and contraction of this metal when exposed to extreme temperature of heat and cold, is less than any other, consequently a more perfect fit to the gums can be obtained, and it does not corrode or tarnish in the mouth. The mineral compound to be employed in forming a continuous gum upon artificial dentures, should possesses the same degree of resisting power as the plate upon which it is to be fused, otherwise the contractility of the mineral in cooling after fusion (if greater than that of the plate) would either cause a cracking of the cement, or warping of the plate, which in either case would be highly detrimental. The same result would follow if the linear expansion or contraction of the metal plate was greater or less than that of the mineral. Hence the importance of having the same degree of dilatation and contractility in the metal and the mineral. Therefore, if substances be used as fluxes, etc., for uniting the minerals which contract much, other substances more refractory in their nature should be added to the compound, such for instance as Strontia, Devonshire clay, or Wedgewood, Asbestos or stone from St. Pernon or St. Leu. These substances duly proportioned and properly prepared may be employed to great advantage in my compound, which I employ in the construction of continuous artificial gums, as exemplified in my new style of work.

The following is an extract from a report from the professors (and Students, who were present at the time) of the Ohio College of Dental Surgery Session of 1851–2:

" To give an idea of the unyielding nature of Dr. Allen's

cement, we will relate *one* of the *many* test experiments made in our presence in the College Laboratory, by Dr. Allen :

" He took a slip of platina plate, of the usual thickness, and just wide enough to give bearing on its end to two common-sized incisor teeth, and about two inches in length. One end of this was turned up, so as to represent the rim of a plate for the teeth. He then set on this, two incisor teeth, made (expressly for the purpose of testing the cement) without platina pins, backings, holes, or rough surfaces for the cement to cling to, and surrounded them with his composition, which was then fused in a muffle.

" When it was cooled it was passed round, with the request that we would pull off the teeth with our fingers. It was first tried by holding the platina strip in one hand and drawing at the teeth with the other, but no one of us was able to affect them in the least in this way.

" It was then passed round, with a pair of pliars to hold the plate, with the request that we would break them off, if possible, with that advantage. It passed round uninjured by this test.

" It was next passed round with the pliars as before, with the addition of a piece of paper folded over the teeth so that we might exert our utmost strength on them without hurting the fingers, when it resisted the trial of nearly all present, but at length one of the teeth was broken in two by the force applied, *leaving the cement and that part of the tooth embraced by it still undisturbed on the plate.*

" In conclusion we would state that we are fully convinced that Dr. A.'s method of forming Artificial Gums is not only practicable, but highly ornamental and useful in the mouth, and that it can only be excelled in strength and durability by the best of natural teeth. As to its capability of resisting the actions of the powerful organs of mastication (from what we have seen), we do not believe that they would be broken by any effort of the jaws.

Signed,

" Thos. Wood, M. D., *Prof. of Anatomy, &c.*
G. S. Van Emon, *Demonstrator.*
Geo. Mendenhall, M. D., *Prof. of Pathology and Therapeutics.*
Jas. Taylor, M. D., D.D.S. *Professor of Principles and Practice of Dental Surgery.*

Nimrod Hull, Bainbridge, Ohio.
Isaac A. Herring, Kosciusko, Miss.
Y. K. Brewster, Belbrook, Ohio.
M. N. Manlove, Lafayette, Ind.
W. C. Duncan, Cincinnati, Ohio.
N. P. Allen, Bowling Green, Ky.
J. H. Olds, Circleville, Ohio.
G. L. Paine, Xenia, "
J. C. Whinery, Salem, "
W. S. Jones, Jr., Russellville, Alabama.
John H. Williams, Pittsburgh, Pa
James T. Irwin, Cincinnati, Ohio.
A. L. Duyers, Greenfield. "

"P.S.—The above communication was written and signed without Dr. Allen's solicitation, as a voluntary tribute from his colleagues and students. "T. WOOD."

*Extract from the Proceedings of the Mississippi Valley Association of Dental Surgeons.**

At the recent annual meeting of the Mississippi Valley Association of Dental Surgeons, held in the city of Louisville, Ky., it was resolved that—

"*Whereas*, Dr. J. Allen, of Cincinnati, has been for several years engaged in prosecuting a series of experiments, of which we have been *cognizant*, for the purpose of acquiring principles, by means of which an artificial gum could be formed upon mineral teeth and metallic plates, in such a manner as to unite them firmly to each other, and therefore render more perfect the present method of setting artificial teeth on plate: And, whereas, the results of his experiments have been highly satisfactory to the members of this Association, as exemplified in the specimens he has exhibited; believing it due to any member of our society who devotes his time, money, and talents to the advancement of any particular branch of the profession, so that benefit may result therefrom, that some action or commendation from us is necessary:

"Therefore, in view of the great benefit which must result to the profession, and the public generally, from the indefatigable exertions of our brother, Dr. J. Allen, in producing a mineral substance, by the use of which artificial teeth may be more perfectly placed in the mouth, and made to resemble the natural organs of mastication:

* This meeting was held in August, 1850.

"*Resolved*, that a committee be appointed to examine the specimens presented by Dr. A., and report to this meeting."

Report.

"The committee to whom was referred the preamble and resolution, with the specimens presented by Dr. Allen, would offer the following report, viz.:

"That they have examined the teeth cemented together, and to the plate, by Dr. Allen, and have subjected them to the following test:

"They have tried the strength, and believe that no ordinary force, such as used in masticating food, will loosen them from the plate; there is greater solidity to the work, and no room for the lodgment of particles of food about the teeth, thus forming substitutes for the block-work, possessing all the advantages of block-work, with more strength, and greater security to the plate.

"They have subjected the gum to the action of nitric and sulphuric acids, and after the pieces had lain over-night in the acids, they find no appreciable effect made on them, although the acids were in a concentrated form.

"The committee are satisfied that this mode of securing the teeth to the plate, recommended by Dr. Allen, possesses cleanliness, strength, and, as far as we can judge, durability. The committee would remark, that in using this cement, the plate used by Dr. Allen is platinum, and pure gold, alloyed 4.100 of platinum; and this greater purity of the metal, which more effectually resists the action of the secretions of the mouth, they regard as advantageous, because it secures the public against the use of inferior gold in mechanical dentistry.

"In view of the labor and expense to which we are satisfied Dr. Allen has been subjected, in bringing this improvement to its present state of perfection, and the advantage to the profession we think its adoption will insure, we therefore recommend the following resolution:

Be it Resolved, that Dr. Allen deserves all commendation for his indefatigable exertions in the developing and making available a new and important improvement in mechanical dentistry, and that we recommend this improvement to the profession as worthy of their attention.

"James Taylor,
W. H. Goddard."